

Application No. 10/828,629

Amendment Date December 21, 2009; Reply to Office action of December 14, 2009

Replacement - Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for the detection and analysis of patterns comprises the steps of:

- a) Input an image containing object labels;
- b) Perform relational feature development using the input image to create at least one pattern map output wherein the pattern map consists of C x C object class relationships across an image set, each row of the pattern map is a distribution of object classes relations to C other classes including itself;
- c) Perform relational feature analysis using the at least one pattern map to create a relational feature analysis result output.

Claim 2 (currently amended): The pattern detection and analysis method of claim 1 further performing ~~comprises a recipe for~~ automation control of the relational feature development step and the relational feature analysis step using a recipe.

Claim 3 (previously presented): The pattern detection and analysis method of claim 1 further includes determination of a genetic anomaly.

Claim 4 (currently amended): The pattern detection and analysis method of claim 1 wherein the relational feature analysis method selects from the set consisting of:

- a) ~~PatternMap~~ Pattern map viewing,
- b) ~~PatternMap~~ Pattern map operation

Claim 5 (currently amended): The pattern detection and analysis method of claim 1 wherein the relational feature development method further comprises the steps of:

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- a) Perform core measurement table development using the input image to create at least one core measurement table output;
- b) Perform feature table production using the at least one core measurement table to create at least one feature table output;
- c) Perform ~~PatternMap~~-pattern map creation using the at least one feature table to create a ~~PatternMap~~-pattern map output.

Claim 6 (currently amended): The relational feature development method of claim 5 further comprises a ~~PatternMap~~-pattern map integration and update step to create an updated ~~PatternMap~~-pattern map.

Claim 7 (previously presented): The relational feature development method of claim 5 wherein the core measurement table selects from the set consisting of:

- a) Conditional table,
- b) Relational table.

Claim 8 (previously presented): The core measurement table of claim 7 wherein the conditional table includes measurements from the set consisting of:

- a) Boundary distance,
- b) Radial distance.

Claim 9 (previously presented): The core measurement table of claim 7 wherein the relational table includes measurements from the set consisting of:

- a) Object distance,
- b) Radial difference,
- c) Δ boundary difference,
- d) Pixel distance.

Claim 10 (previously presented): The conditional table measurement of claim 8 wherein the boundary distance measurement further comprises the steps of:

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- a) Perform structure object mask production using the input image to create a structure object mask output;
- b) Perform inner distance transform using the structure object mask to create an inner distance transform image output;
- c) Find individual object centroids using the input image to create individual object centroids output;
- d) Find object boundary distance using the individual object centroid and the inner distance transform image to create an object boundary distance output.

Claim 11 (previously presented): The relational table measurement of claim 9 wherein the object distance measurement further comprises the steps of:

- a) Perform adaptive zone of influence using the input image to create a ZOI boundary output;
- b) Populate the object distance table using the ZOI boundary output to create an object distance table output.

Claim 12 (previously presented): The relational table measurement of claim 9 wherein the pixel distance measurement includes measurements from the set consisting of:

- a) Pixel distance average,
- b) Pixel distance edge.

Claim 13 (previously presented): The relational feature development method of claim 5 wherein the feature table production further consists of the following steps:

- a) Select one input relational table;
- b) Select a feature rule;
- c) Choose a data treatment;
- d) Select a class member integration rule.

Claim 14 (previously presented): The feature table production of claim 13 wherein the feature rule selects from the set consisting of:

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- a) Element based rules,
- b) Row based rules.

Claim 15 (previously presented): The feature rule of claim 14 wherein the element based rules selects from the set consisting of:

- a) Conditional CM table rules,
- b) Relational CM table rules.

Claim 16 (currently amended): The relational feature development method of claim 56 wherein the ~~PatternMap~~pattern map integration and update step selects from the set consisting of:

- a) ~~PatternMap~~Pattern map integration rule,
- b) ~~PatternMap~~Pattern map update rule.

Claim 17 (currently amended): The relational feature analysis method of claim 4 wherein the ~~PatternMap~~pattern map Viewing selects from the set consisting of:

- a) Color coded map,
- b) Bar chart,
- c) Histogram,
- d) Image montage.

Claim 18 (currently amended): The pattern detection and analysis method of claim 2 wherein the recipe for automation control is selected from the set consisting of:

- a) Image loading recipe,
- b) Feature table production recipe,
- c) ~~PatternMap~~Pattern map creation recipe,
- d) ~~PatternMap~~Pattern map update and integration recipe,
- e) ~~PatternMap~~Pattern map operations recipe,
- f) Output recipe.

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Claim 19 (withdrawn): A relational feature development method comprises the steps of:

- a) Input an image containing object labels;
- b) Perform core measurement table development using the input image to create at least one core measurement table output;
- c) Perform feature table production using the at least one core measurement table to create at least one feature table output;
- d) Perform PatternMap creation using the at least one feature table to create a PatternMap output.

Claim 20 (withdrawn): The relational feature development method of claim 19 further comprises a PatternMap integration and update step to create an updated PatternMap.

Claim 21 (withdrawn): The relational feature development method of claim 19 wherein the core measurement table selects from the set consisting of:

- a) Conditional table,
- b) Relational table.

Claim 22 (withdrawn): The core measurement table of claim 21 wherein the conditional table includes measurements from the set consisting of:

- a) Boundary distance,
- b) Radial distance.

Claim 23 (withdrawn): The core measurement table of claim 21 wherein the relational table includes measurements from the set consisting of:

- a) Object distance,
- b) Radial difference,
- c) Δboundary difference,
- d) Pixel distance.

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Claim 24 (withdrawn): The conditional table measurement of claim 22 wherein the boundary distance measurement further comprises the steps of:

- a) Perform structure object mask production using the input image to create structure object mask output;
- b) Perform inner distance transform using the structure object mask to create inner distance transform image output;
- c) Find individual object centroid using the input image to create individual object centroid output;
- d) Find object boundary distance using the individual object centroid and the inner distance transform image to create object boundary distance output.

Claim 25 (withdrawn): The relational table measurement of claim 23 wherein the object distance measurement further comprises the steps of:

- a) Perform adaptive zone of influence using the input image to create ZOI boundary output;
- b) Populate the object distance table using the ZOI boundary output to create the object distance table output.

Claim 26 (withdrawn): The relational table measurement of claim 23 wherein the pixel distance measurement includes measurements from the set consisting of:

- a) Pixel distance average,
- b) Pixel distance edge.

Claim 27 (withdrawn): The relational feature development method of claim 19 wherein feature table production further includes the following steps:

- a) Select one input relational table;
- b) Select a feature rule;
- c) Choose a data treatment;
- d) Select a class member integration rule.

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Claim 28 (withdrawn): The feature table production of claim 27 wherein the feature rule is selected from the set consisting of:

- a) Element based rules,
- b) Row based rules.

Claim 29 (withdrawn): The feature rule of claim 28 wherein the element based rules are selected from the set consisting of:

- a) Conditional CM table rules,
- b) Relational CM table rules.

Claim 30 (withdrawn): The relational feature development method of claim 19 wherein the PatternMap integration and update step are selected from the set consisting of:

- a) PatternMap integration rule,
- b) PatternMap update rule.

Claim 31 (withdrawn): A boundary distance measurement comprises the steps of:

- a) Input an image containing object labels;
- b) Perform structure object mask production using the input image to create structure object mask output;
- c) Perform inner distance transform using the structure object mask to create inner distance transform image output;
- d) Find individual object centroid using the input image to create individual object centroid output;
- e) Find object boundary distance using the individual object centroid and the inner distance transform image to create object boundary distance output.